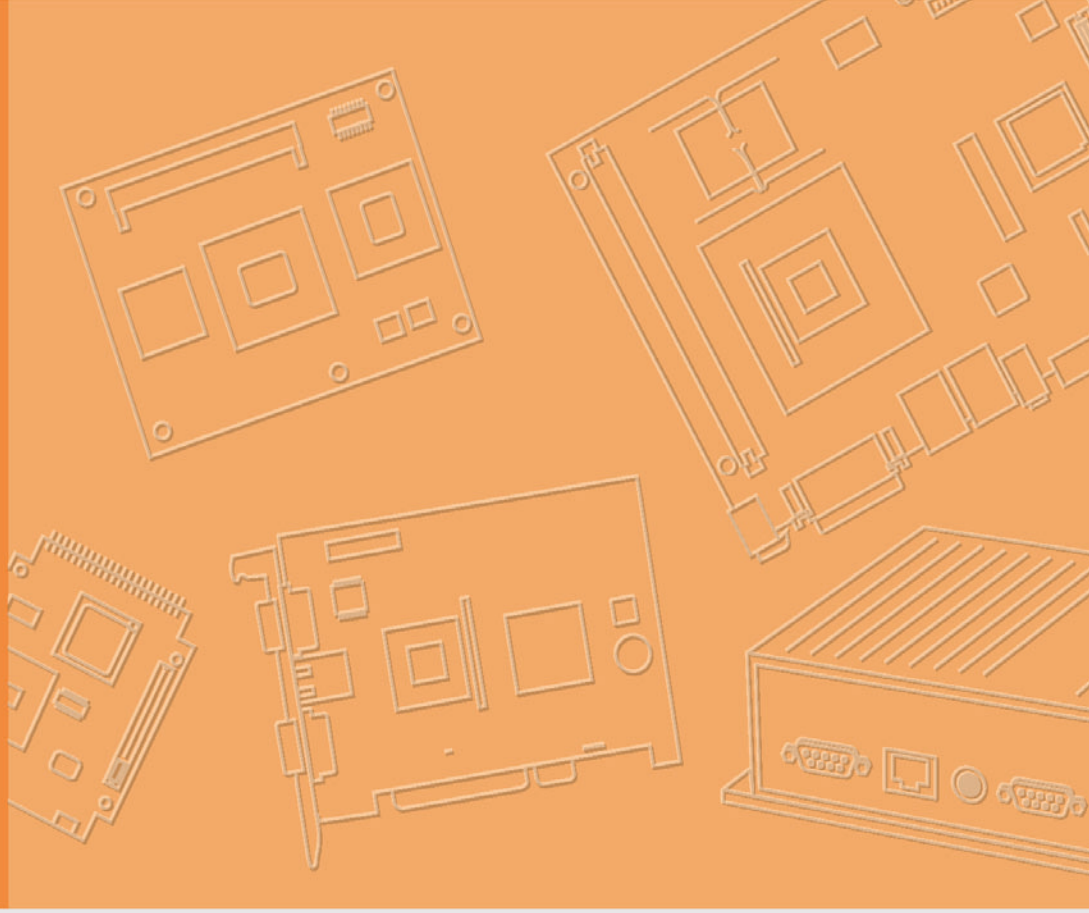


User Manual

UbiQ-480

Residential e-Home Terminal

Trusted ePlatform Services

ADVANTECH

Copyright

The documentation and the software included with this product are copyrighted 2009 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

Acknowledgements

Intel and Pentium are trademarks of Intel Corporation.

Microsoft Windows and MS-DOS are registered trademarks of Microsoft Corp.

All other product names or trademarks are properties of their respective owners.

Part No. 2008048000 Edition 1

Printed in Taiwan October 2009

Warnings and Cautions

Warning! *Warnings indicate conditions, which if not observed, can cause personal injury!*

Caution! *Cautions are included to help you avoid damaging hardware or losing data.*

e.g.:

There is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

Declaration of Conformity

CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables.

This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

FCC Class B

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Warning! *Any changes or modifications made to the equipment which are not expressly approved by the relevant standards authority could void your authority to operate the equipment.*

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
16. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1.Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Contents

Chapter 1 Introduction.....1

1.1 Overview 2
Figure 1.1 Overview of the UBIQ-480..... 3
1.2 System Configuration..... 3

Chapter 2 Hardware and Software Description..5

2.1 Product Features..... 6
2.2 Mechanical Specifications..... 7
Figure 2.1 UbiQ-480 Dimensions 7
Figure 2.2 Wall Box Dimensions..... 8
Figure 2.3 Front View 11
Figure 2.4 Left View..... 11
Figure 2.5 I/O Port View 11
2.3 Hardware and Software Specifications 12
Table 2.1: Hardware 12

Chapter 3 Design Requirements.....13

3.1 Environmental Specifications 14
3.2 Reliability..... 14

Chapter 1

Introduction

This chapter briefly introduces the UbiQ-480 product.

1.1 Overview

The UbiQ-480 residential terminal with Windows operating system built in offers home appliance control, remote monitoring/security and home service functions. In addition, the speed of the processor and the LAN-enabled architecture allow the UBIQ-480 to function as an integrated home gateway. The UBIQ-480 is equipped with an FreeScale i.MX31 523 MHz processor, a 7" touch screen display, onboard Ethernet, and audio, serving as the key of a home/building security & automation solution. It connects services and emergency call and sensor signals of an apartment unit through the LAN to the administration center.

Congratulations on selecting the UbiQ-480 touch control PC, supported by Microsoft Windows® CE. This unique touch control computer offers the convenience of highly configurable features, and is designed for wall-mountable eHome/Building applications. The FreeScale i.MX 31 processor is mated with the Microsoft Windows® CE operating system, delivering a high performance, reliable, fanless in-wall touch control computer system.

Microsoft WinCE® enable a user-friendly and attractive GUI interface that is ideal for all eHome / eBuilding applications. A built-in FreeScale i.MX31 and a 7" 16:9 true color TFT LCD together provide excellent graphical performance. The UbiQ-480 is equipped with a built-in speaker and microphone that function as an intercom, either through direct analog audio interface, or via LAN. The stylish design features and smooth glazed finish of the UbiQ-480 makes it an elegant addition, easily mating with any home or building environment. A variety of I/O interfaces are included for further expansion, as well as easily-accessed and programmable hotkeys, which are all available for easy peripheral integration.

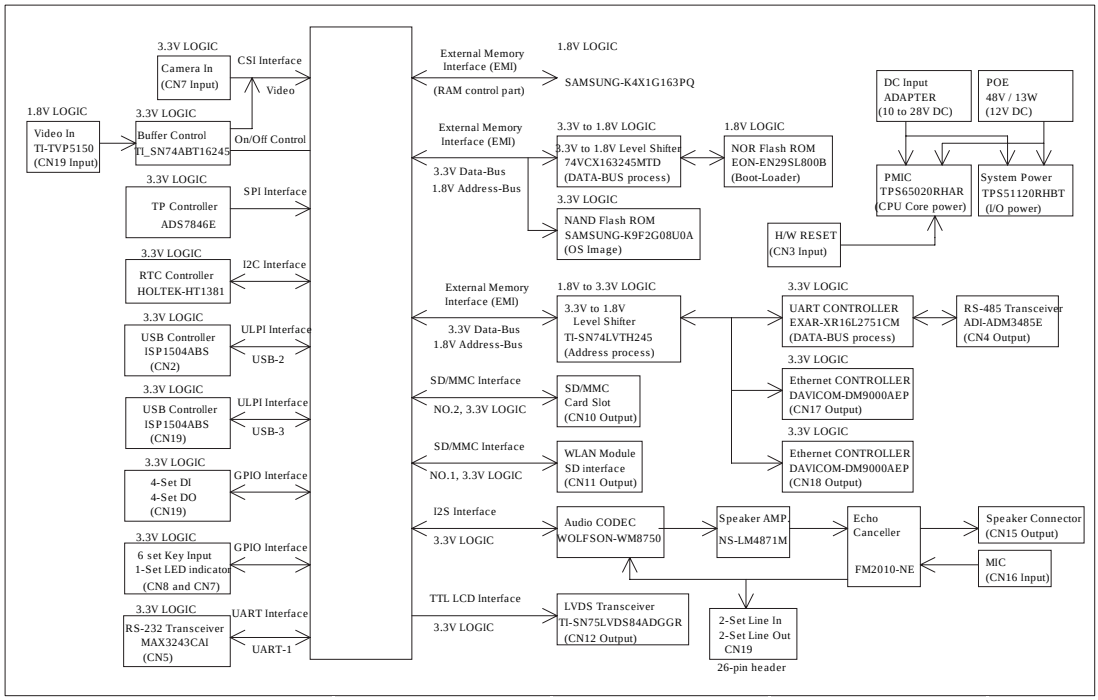
The main features of the UbiQ-480 are:

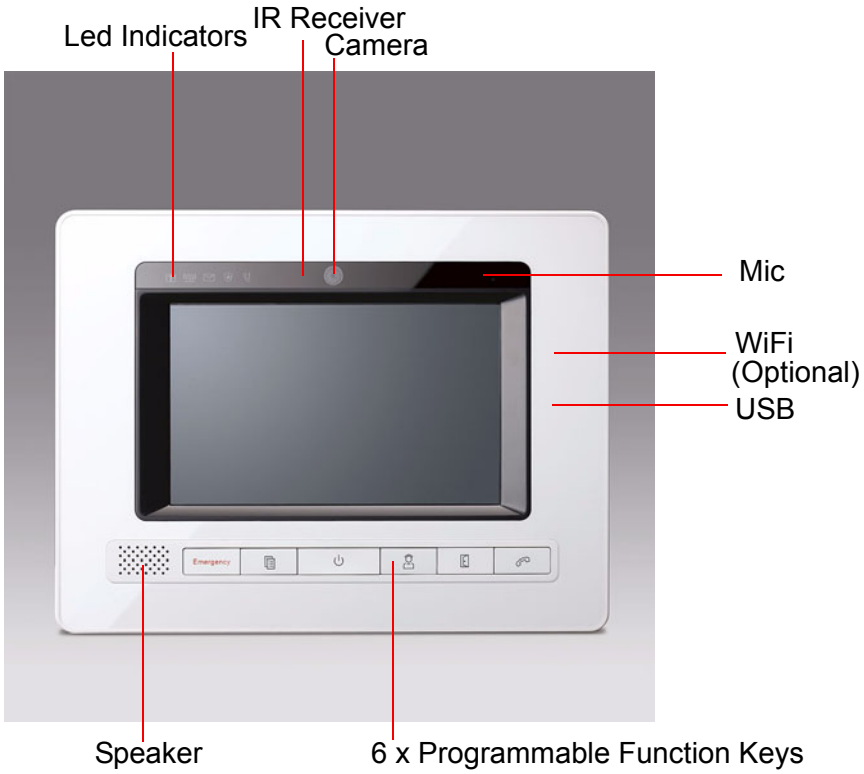
- High performance platform with FreeScale i.MX31
- 1.3M pixel CMOS camera
- Built-in Handset, microphone and speaker
- 7" TFT LCD with touchscreen
- Six programmable function keys
- 2 LAN ports
- Supports RS-485/RS-232, USB2.0, DI/DO
- PoE power (Power over Ethernet, optional)
- Various faceplates (by request)
- Supports VESA (75X75) standard
- Microsoft Windows® CE
- WiFi 802.11 b/g (optional)
- Advantech SUSI API manager is supported for easy SI development

Figure 1.1 Overview of the UBIQ-480

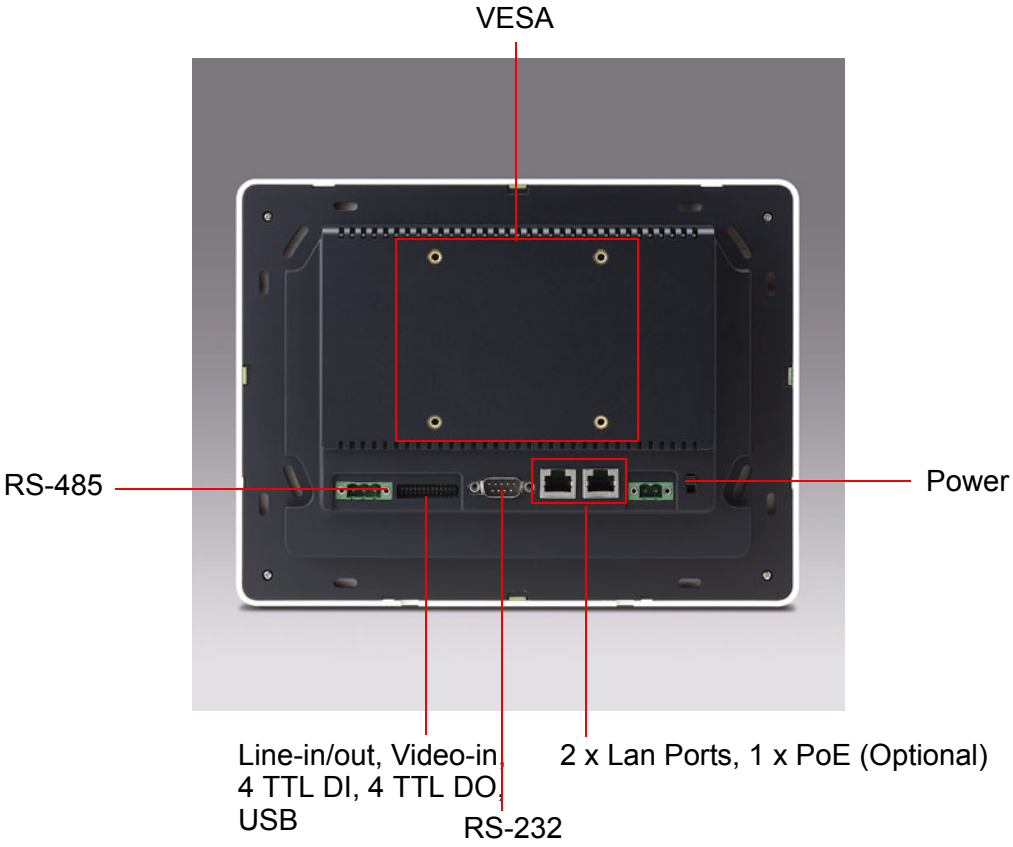
1.2 System Configuration

A block diagram of the UbiQ-480 Home Terminal based home automation environment is shown in the following diagram:





I/O Placement



Chapter 2

Hardware and Software Description

2.1 Product Features

The UbiQ-480 is a smart wall-mount touch terminal for eHome/Building. Multimedia and entertainment are the main features of UbiQ-480 due to its built-in powerful Free-Scale i.MX31 processor and Microsoft Windows® CE. A touchscreen and a 7" 16 : 9 true color TFT LCD make interaction with the UbiQ-480 more natural and colorful. The UbiQ-480 can easily communicate with intercom devices with built-in speaker, microphone, line-in and line-out connectors. Additionally, the dual-LAN port design makes internet security control easier to manage. IR receiver and WiFi functions give the UbiQ-480 more remote control capability. Furthermore, the exterior with its slim faceplate, which protrudes only 8.0 mm from the wall makes the UbiQ-480 more suitable for the home environment. Peripheral interface are easy due to rich I/O interfaces, such as LAN, RS-232, RS-485, USB and DI/O.

- High performance platform with FreeScale i.MX31
- 1.3 M pixel CMOS Camera
- Built-in Handset, microphone and speaker
- 7" TFT LCD with touchscreen
- Six programmable function keys
- 2 LAN ports
- Supports RS-485/RS-232, USB2.0, DI/DO
- PoE Power (Power over Ethernet, optional)
- Various faceplate (by Request)
- Supports VESA (75X75) standard
- Microsoft Windows® CE
- WiFi 802.11 b/g (optional)
- Advantech SUSI API manager is supported for easy SI development

The UbiQ-480 is an elegant touch panel with customizable controls that installs in the walls of residential and commercial spaces to control anything from audio, video and communications appliances to lighting, climate and security devices. Windows CE enables slick graphical user interfaces and an IR port accepts commands from remote controls for convenient operation.

Responding to soaring market demand, Advantech moves to efficiently and fully combine technology with comfort by establishing Advantech Intelligent Services, seeking to extend the "Ubiquitous" model everywhere with a foundation of "Comfort, Convenience, Safety, and Energy-Consciousness." Advantech infuses its embedded system technology into putting together the "UbiQ Scenario Master" lighting scenario control modules. This product line is compatible with community security monitoring and intercom systems. More than just a control panel, Advantech has developed an intelligent living scenario for any residential or commercial venue. Whether it's household space, or commercial spaces such as hotels, restaurants, or boardrooms, all can enjoy the amenities and comfort brought by Advantech's living solutions through the combination of remote monitoring and internet-controlled systems.

UbiQ Scenario Master is currently an integral part of numerous development projects, including luxury homes in Taiwan, India, Dubai, and Australia, with many more international players coming on board. Advantech's UbiQ Scenario Master has won a place among lighting scenario control modules in digital homes; its user-friendly operation interface further promises the bliss of intelligent home living.

2.2 Mechanical Specifications

System dimensions: 261.26 (W) x 196.26 (H) x 37 (D) mm

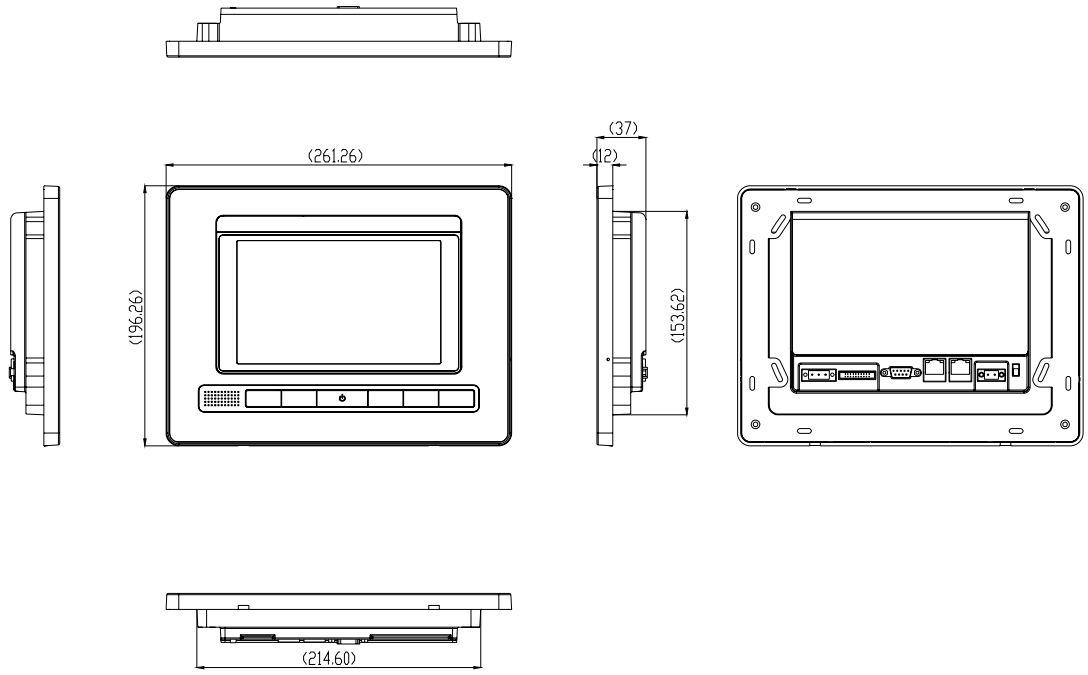
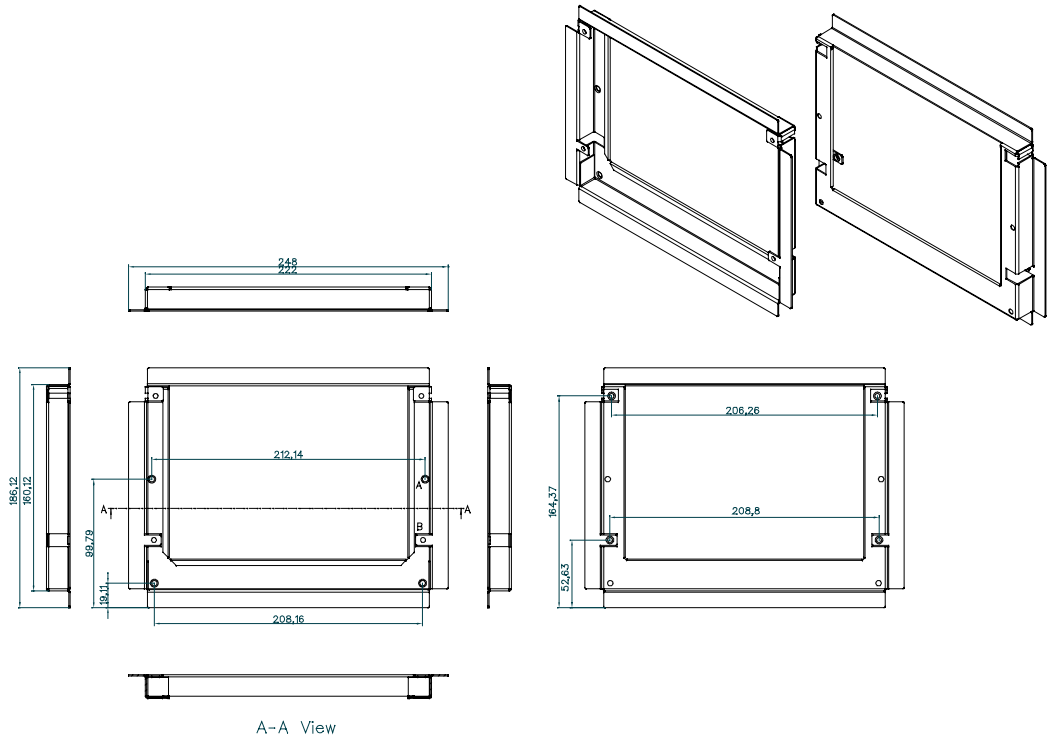


Figure 2.1 UbiQ-480 Dimensions



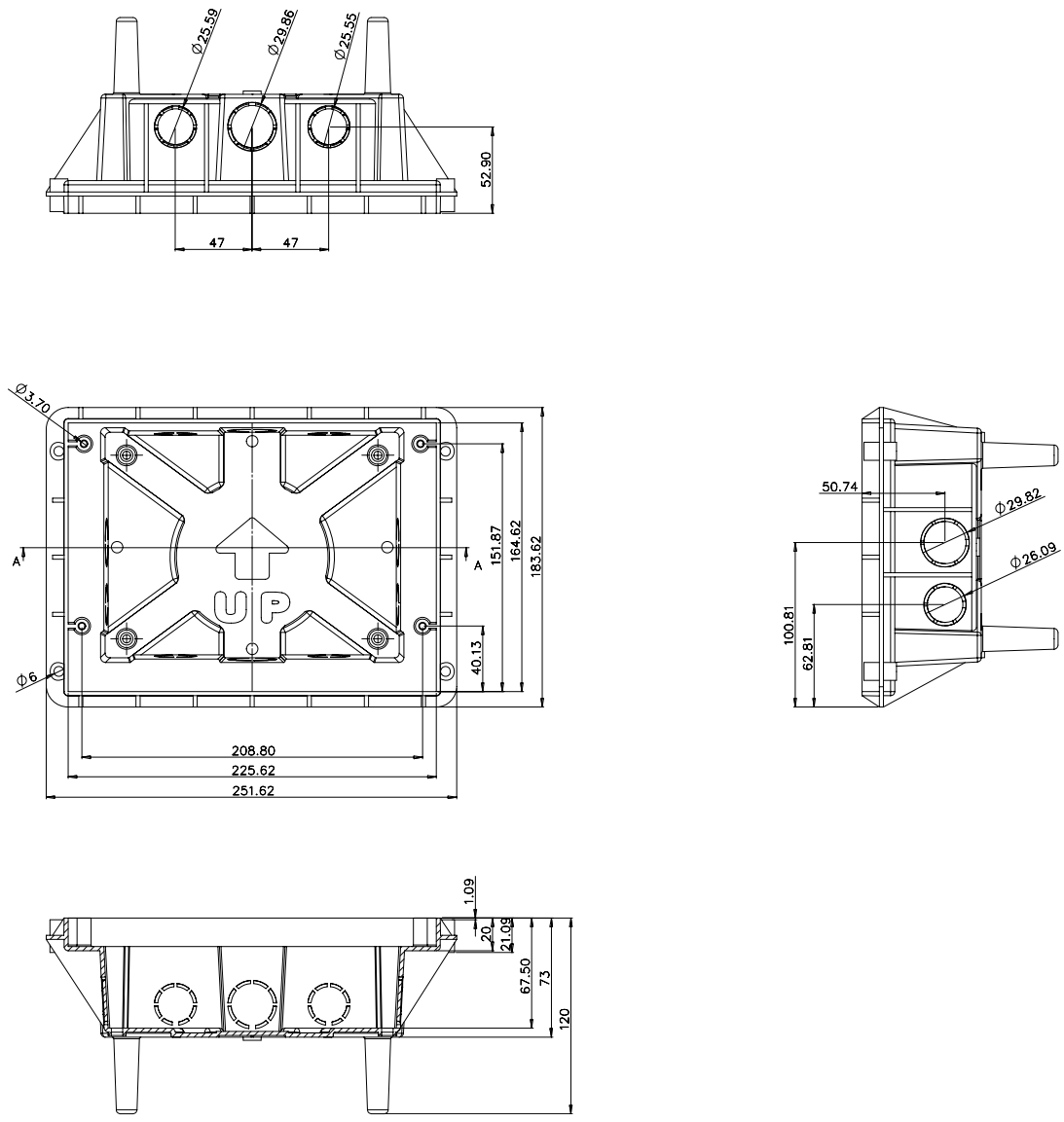
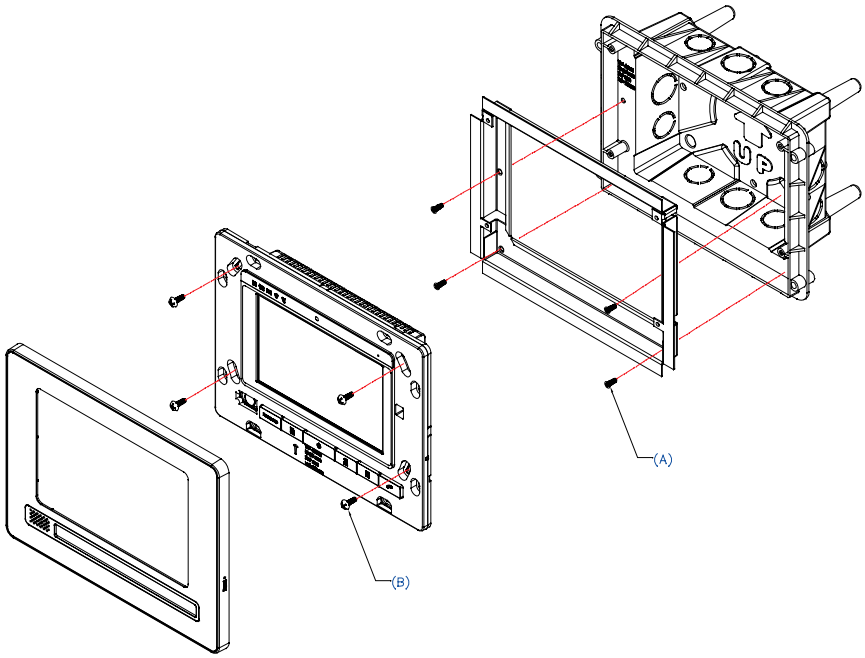
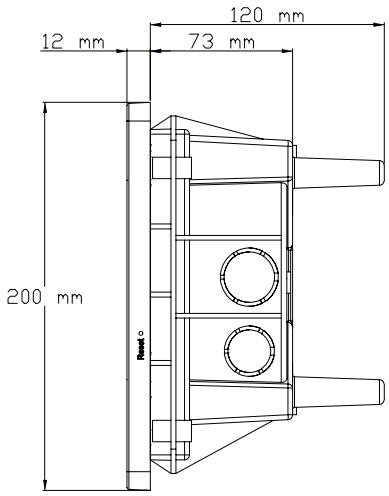


Figure 2.2 Wall Box Dimensions

Assembly with Wall Box

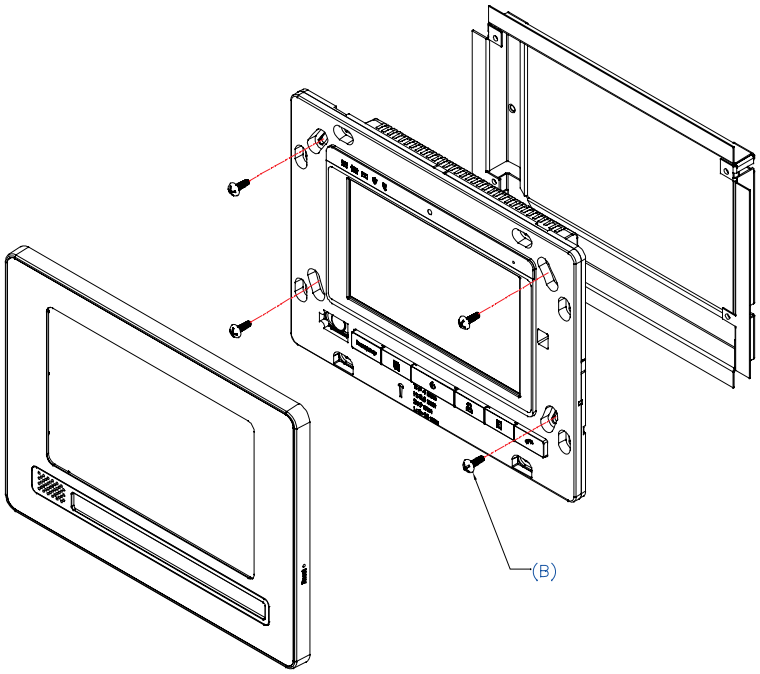


Side View



Screw Spec A	Screw Spec B
T: 4 mm	M: 4 mm
L: 10 mm	L: 6 mm
D: 6 mm	

Assembly without Wall Box



Screw Spec
M: 4 mm
L: 6 mm

Overview

Figure 2.3 Front View

Figure 2.4 Left View

Figure 2.5 I/O Port View

2.3 Hardware and Software Specifications

Table 2.1: Hardware		
Hardware	CPU	Freescale i.MX31 523 MHZ
	System Memory	256 MB SDRAM
	Data Memory	NAND 256 MB flash on board, SD Slot (optional, up to 2 GB)
	Rear I/O	RS-232 x 1; RS-485 x 1, Video-in connector x 1; USB 2.0 x 1; Line-in/out x 1; 1 x 4 TTL level DI, 4 TTL level DO
	Front I/O	USB 2.0 x 1
	Hot Keys	6 x programmable function keys
	Built-in Camera	1.3 M Pixels CMOS camera
	LED indicator	6 x LED indicator
	Audio	Built-in MIC & speaker
	RF Wireless	IR receiver x 1
	Network (LAN)	10/100 Base-T Ethernet (RJ-45) x 2
Software	Operating System	Windows CE
Mechanical	Mounting type	Wall Mounting/VESA (75 x 75) Standard
	Customization	Faceplate
	Dimensions (W x H x D)	262.16 x 196.26 x 37 mm
Display	LCD	7” color TFT-LCD
	Resolution	800 x 480
	Touch Panel Set	Resistive (+ controller)
	Pixel Pitch	0.1905 x 0.1905
	Contrast Ratio	500/1
	Luminance (cd/m^2)	400 (cd/m^2)
	Viewing Angel	160/160
Power	Power Consumption	10~24 V and Isolated PoE Power, external power should be no less than 8 W
Environment	Noise	Zero-noise
	Fan	Fanless
	Operating Temperature	0 ~ 40° C
	Certifications	CE/FCC Class B, CCC, BSMI, UL
Optional	Wall-Box	In-Wall
	WiFi	802.11 b/g
	Faceplate	White
		Silver (metal)
		Black (metal)
	PoE	PoE Module

Software Manual

SuSi 3.0 User Manual: http://www.advantech.com/ess/download.aspx

Windows CE SDK: http://www.advantech.com/ess/download.aspx

Chapter 3

Design Requirements

3.1 Environmental Specifications

Temperature & Humidity

- Operating Temperature: 0 ~ 40° C
- Storage Temperature: 0 ~ 60° C
- Relative Humidity: 0 ~ 95% RH (Non-condensed)

Case / Panel Temperature

- Less than 40° C @ 25° C ambient temperature (front bezel)

Certifications

- CE
- FCC class B approved
- UL
- CCC
- 8 ~ 500 Hz, 1 G acceleration

3.2 Reliability

MTBF

- 20,000 hours

Touchscreen

- 1 million touch actuation times on a single point with a 5/8" diameter silicon finger under a 350 g load at 2 HZ

Power Requirements

- DC Input Voltage: 10 V ~ 24 V
- Power Consumption: less than 8 W (adapter: no less than 8 W)

Note!

1. *UbiQ-480 should only be connected to PoE networks without routing to the outside plant.*
2. *This product is intended to be supplied by a listed power unit marked "Class 2" and rated O/P: 10 ~ 24 V_{dc}, minimum 3 A.*
3. *Make sure the external power adapter (includes power cords and plug assemblies) provided with the unit is certified and suitable for use in the country of operation.*

Trusted ePlatform Services

ADVANTECH

www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2009